

C89325 Lead-free replacement for C937

Continuous cast	GreenAlloys™
Product description	Bismuth tin bronze
Solids	1/2" to 10" O.D.
Tubes	1 1/8" to 9" O.D.
Rectangles	Up to 15"
Standard lengths	144"
Shape/form	Semi-finished, mill stock or near-net shapes, anode, bar stock, billet/bloom, squares, hex, plate, profile or structural shape, flats/rectangular bar
Compliance	C89325 is compliant with key legislation including (1) Federal Safe Drinking Water Act - SDWA, (2) S. 3874 Federal Reduction of Lead in Drinking Water Act, (3) California AB1953, and (4) Vermont Act 193

Typical uses

Industrial

Bushings, high-speed/high-pressure bearings

Chemical composition

Cu (%) ¹	Pb (%)	Sn (%)	Zn (%)	Fe (%)	P (%)	Ni (%) ²	Al (%)	Bi (%)	S (%)	Sb (%)	Si (%)
84.00-88.00	0.10	9.00-11.00	1.00	0.15	0.10	1.00	0.005	2.70-3.70	0.08	0.50	0.005

Chemical composition provided by CDA

¹0.01 - 2.0% as any single or combination of Ce La or other rare earth(x) elements as agreed upon. (x)ASM International definition: one of the group of chemically similar metals with atomic numbers 57 through 71 commonly referred to as lanthanides. ²Ni value includes Co.
Note: Cu + sum of named elements, 99.0% min. Single values represent maximums.

Machinability

Copper alloy UNS no.	Machinability rating	Density (lb/in ³ at 68 ° F)
C89325	80	0.323

Mechanical properties

Tensile strength, min		Yield strength, at 0.5% extension under load, min		Elongation, in 2 in. or 50 mm, min	Brinell hardness (500 kg load)	Remarks
ksi	MPa	ksi	MPa	%	typical BHN	
30	207	12	83	4	73	

Physical properties

	US customary	Metric
Melting point – liquidus	1805 °F	985 °C
Melting point – solidus	1432 °F	777 °C
Density	0.323 lb/in ³ at 68 °F	8.94 gm/cm ³ at 20 °C
Specific gravity	8.94	8.94
Electrical conductivity	10.8% IACS at 68 °F	0.062 MegaSiemens/cm at 20 °C
Thermal conductivity	29 Btu/sq ft/ft hr/°F at 68 °F	50.2 W/m at 20 °C
Coefficient of thermal expansion 68-392	10.3 · 10 ⁻⁶ per °F (68-392 °F)	17.8 · 10 ⁻⁶ per °C (20-200 °C)
Specific heat capacity	0.089 Btu/lb/°F at 68 °F	372.9 J/kg at 20 °C
Modulus of elasticity in tension	16400 ksi	113074 MPa

Physical properties provided by CDA

Fabrication properties

Technique	Suitability
Soldering	Good
Brazing	Good
Oxyacetylene welding	Not recommended
Gas shielded arc welding	Not recommended
Coated metal arc welding	Not recommended
Machinability rating	80

Fabrication properties provided by CDA

Casting characteristics

Casting attribute	Level
Casting yield	High
Drossing	Low
Effect of section size	Low
Fluidity	Medium
Gassing	Medium
Patternmakers shrinkage (inches per foot)	3/32
Shrinkage in solidification	Low

Casting characteristics provided by CDA